EUPHORBIACEAE CACTACEAEQUE NOVAE VEL CRITICAE COLOMBIANAE. — I.

LEON CROIZAT,
(Arnold Arboretum, Harvard University,
Jamaica Plain, Mass., E. U. A.).

The botanical investigations now so vigorously conducted in the Republic of Colombia bring forth a continuous stream of novelties or critical forms in the Euphorbiaceae and the Cactaceae, which it is the purpose of these and following notes to describe and to discuss as they become known. Monographic work on selected groups is a clear necessity, but it is to my regret that I must set it aside for a later date. The study of large groups must often take into account material which proves impossible to secure at present on loan. The plant-world of Colombia is so vast and rich that tolerably correct guesses—such as can made on smaller floras—are not possible without consulting the type-specimens needed. Little else beyond descriptions and passing notes can be given at present.

EUPHORBIACEAE

Phyllanoa gen. nov.

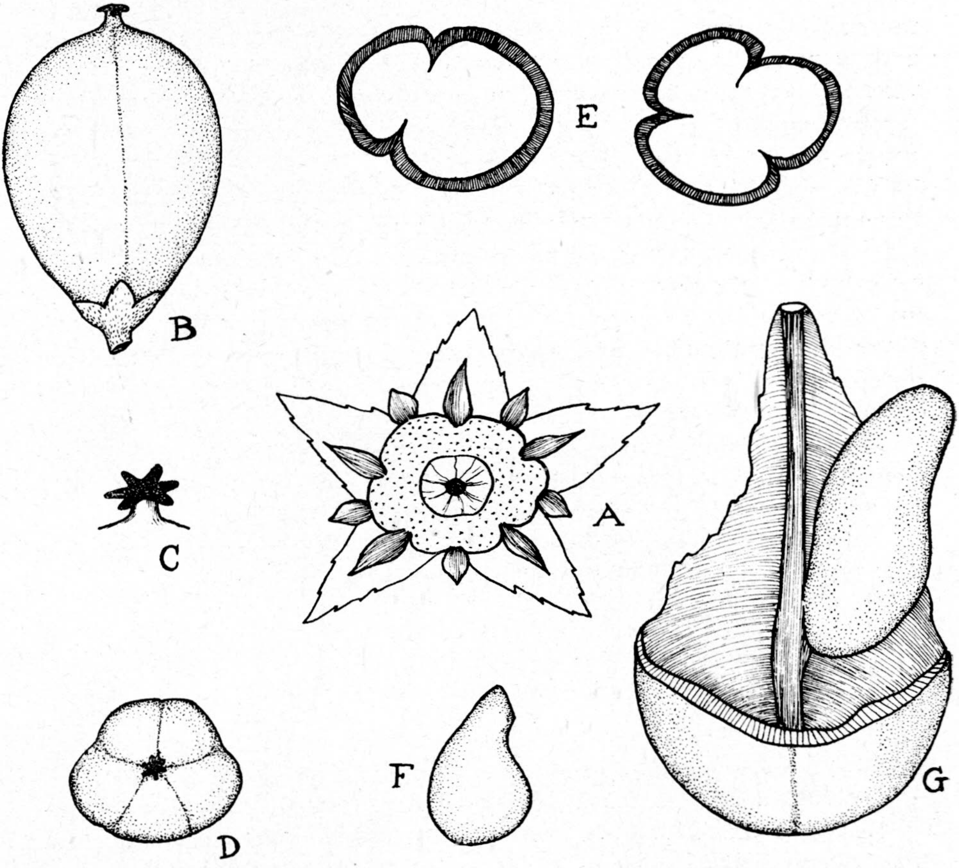
Trunco sat valido; foliis alternatis rarissime suboppositis, stipulatis. Inflorescentiis ♂ ignotis; ♀ spiciformibus lateralibus, saepius caulocarpicis, aggregatis, gracilibus. Perianthio ♀ persistente bracteolato 5-lobo: lobis late triangularibus, ligulis acuminatis, lobis perianthii oppositis; petalis minutis cum lobis perianthii alternis; disco sat valido sub ovario insidente margine lobulato-rotundato, disci lobis cum petalis oppositis. Fructu 2-3-cocco capsulari, longiore quam lato, epicarpio tenui, dissepimentis brevibus haud validis, stylo in columnam brevissimam connato, stigmatibus in disculum applanatum margine eroso; ovulis in cella quave 2 (uno saepissime abortivo), in placenta vix supra fructus ipsius base affixis, columella brevissima; semine immaturo (e latere viso) forma ovoideo, basi truncato, apice deflexo.

Species typica: *Phyllanoa colombiana.* (vide fig. 1).

Phyllanoa colombiana sp. nov. *Notis genericis haec addenda:* Arbor ca. 8-metralis, ramulis anguloso-compressis striatisque, pube crispula valde adpressa scabridis, ferrugineo brunneis, stipulis acuminatis subsetaceis, perulis persistentibus saepe triangulari-acutis. Foliis primo intuito *Phyllanthi* ssp. formam in mentem vocantibus, 3.5 x 7 cm. magnis, breviter petiolatis (petiolo pubescente ca. 0.5 cm. longo) eglandulosis, ellipticis vel subobovato-ellipticis, leviter anisomeris, apice breviter acuminatis basi plus minusve rotundatis, firme chartaceis, praeter costa puberula glabris glabratisve, margine crenato-dentato-serratis dentibus apiculo brunneo marcescenti coronatis, ad 3-4 per cm. longitudinis. Inflorescentiis 6-10 cm. longis, eadem ratione ac ramulis pubescentibus, fructibus singulis vel geminis, pedicello brevissimo vix 1 mm. longo. sat robusto; bene articulato bracteolato, perianthio ca. 3-4 mm. lato, lobis (sepalis) margine parcius ciliatis latissime triangularibus persistentibus ca. 1 mm. longis, fructu ca. 13 mm. longo, 9 mm. lato, ellipsoideo, stylo vix 1-1.5 mm. longo, semine (inmaturo) ca. 5 mm. longo, 2 mm. lato, leviusculo, ecarunculato.

TYPUS: — El Valle: San Antonio, west of Cali, near the summit of the Cordillera Occidental, alt. 1900-2350 m. *Killip & García 33925* (in U. S. Nat. Herb.).

Despite my aversion to publishing monotypes or oligotypes in large and controversial families, I find it impossible to withhold in this case the announcement of a new genus. The type-material suggests at first inspection a woody, robust species of *Phyllanthus* L., but the serrate to dentate margin of the leaf excludes it. The inflorescence also suggests *Phyllanthus* to a casual observer, but its spicate, sometimes fascicled habit is actually similar to that of *Baccaurea* Lour. and of the aggregate centering around *Antidesma* L. The fruit has the ellipsoid outline of the capsule of *Drypetes* Vahl and *Aporosa* Bl. The abortion of an ovule is reminiscent of *Amanoa* Aubl., but the attachment of the ovule is peculiar; the point of emersion of the funicle from the columella is very low in relation to the length of the fruit, so that the chalaza, as seen, points toward the style rather than toward the perianth. It is probable that this disposition is temporary, and changes when total maturity is reached. No manifest aril or caruncle is present, the outline of the seed being reminiscent of *Securinega* Juss. and *Actephila* Bl. The lobes of the perianth are quite persistent, unlike those of *Savia* Willd., and often of *Phyllanthus* L. It seems probable that the "petals" and the "ligules" which, respectively, alternate with, or face the lobes of the perianth, are but parts



Phyllanoa colombiana Croiz.

A. Female calyx under ripening ovary (the ovary removed) (about 3 mm. long and wide).

B. A nearly ripe capsule from the side (ca. 13 mm. long, 9 mm. wide).

C. Style in fruit (ca. 1 mm. long and wide).

D. A nearly ripe capsule seen from above.

E. Sections through the ovary showing the relative extension of the infolded carpellary margins.

F. Ripening seed ((side view. ca. 5 mm. long, 2 mm. wide).

G. A cell of the ovary opened at the dorsal side to show the low attachment of the seed and its position (slightly diagrammatic).

Drawn by Inés de Zulueta

of a single dimerous dimorphic whorl which lies outside the disc (staminodes are occasionally found in *Savia* inside the disc), the whole arrangement being strongly individual, and unique in the affinity which is indicated by the sum of the vegetative and floral characters.

The vegetative and floral characters of *Phyllanoa* exclude all the genera placed by Pax & Hoffmann (in Engl. & Prantl Nat. Pflanzenf. 19 (c): 44. 1931) in the Antidesminae, which this new genus tends to approach in the nature of the 2-merous or 3-merous fruit, and the clustering of the inflorescence in caulocarpic or subcaulocarpic fascicles. These characters also rule out the Glochidiinae and the Phyllanthinae of the same authors. The known genera of the Andrachninae, Wielandiinae, Amanoinae, Discocarpinae and Drypetinae are also excluded in the same manner, although it is probable that *Phyllanoa* is nearest to them than to other groups.

Chonocentrum Pierre ex Pax & Hoffm., which is known only from male material, is described in a manner (in Pflanzenr. iv 147. xv: 205. 1922) which suggests floral and vegetative characters not to be distinguished from those of *Drypetes*. For the present, *Phyllanoa* may rest near *Savia*. The generic name is derived by anagram from *Phyllanthus* and *Amanoa*.

Croton Linnaeus.

Croton pseudofragrans sp. nov.

Arbuscula ca. 4-metralis, innovationibus sordide brunneis, argillaceo-tomentosis. Foliis ovato-lanceolatis, apice longe acuminatis basi rotundato-cordatis, 8-22 cm. longis, 3.5-9 cm. latis, supra pallide brunneis minute papillato-scabridis glabrescentibus, nervis 10-12 - jugis, subtus tomentosis, pilis stellatis centro saepius obscure brunneis, laminae margine integerrima, glandulis posticis 2 late patelliformibus sessilibus, petiolo vix 1 cm. longo. Inflorescentiis ut adsunt valde abbreviatis. Floribus ♂: perianthio ob indumentum brunneum insigni, 8 mm. longo, 10-12 mm. lato, lobis 5 latissime imbricativis margine albicantibus, medio brunneis costulatis, intus glabris, disco integro cupulari 5-6 mm. lato, petalis nullis, ovario 5 mm. lato, 3 mm. longo pilis stellatis grossis brunneis induto, stylis 3, quove 4-5 mm. longo fere ad basim 4-5-partito.

TYPUS: — Comisaría del Putumayo:—on the Piñuña Negro, alt. 240 m. — *Cuatrecasas 10700* (in herb. Arnold Arbor).

Suggests somewhat *C. fragrans* H. B. K. in habit, but is a coarser plant, with different floral characters.

Croton badiocalyx sp. nov.

Frutex ca. metralis, innovationibus argenteo-cupreis potius tomentosis quam lepidotis. Foliis ovato-ellipticis, supra brunneis vel olivaceis, subtus argenteo-cupreis vel argenteis, 4.5-8 cm. longis, 0.5 - 1.5 cm. latis, margine integris, apice obtuse acuminatis, basi cordatis, glandulis patelliformibus posticis 2 nervis sat late adscendentibus ca. 8-jugis, primo jugo subramoso, petiolo sat gracili ca. 1 cm. longo, stipulis subnullis. Floribus ♂: perianthio cupulato, pulchre badio ca. 3 mm. magno, lobis triangularibus petalis aequilongis, staminibus ca. 15. Floribus ♀: perianthio extus badio hirtello ca. 5 mm. longo, 7 mm. lato; lobis 5, ovoideis, ca. 2 mm. longis vel minoribus sub fructu accrescentibus ad 5-6 mm. longis, 2.5. mm. latis vix reduplicativis, glandulis oppositisepalis carnosis discretis 5, ovario globuloso ca. 2 mm. magno, subbrunneo-hispido, stylis 3 mm. longis iterum partitis.

TYPUS: — Los Llanos; (Boyacá) : — Orocué, alt. 140 m. *O. Haught 2823* (in herb. Arnold Arbor.).

The perianth is reminiscent of *C. Cajucara* Benth., and the foliage of *C. tricolor* Muell.-Arg., both of Brazil. The plants that so far have been accepted as *C. argyrophyllus* H. B. K. in Venezuela and Colombia have an altogether different ♀ flower, and are unrelated to this new species.

Croton cucutensis sp. nov.

Frutex videtur, innovationibus ochraceo-hispidis. Foliis ovatis vel ovato-lanceolatis, apice acuminatis basi cordatis, 2-5 cm. longis (ut adsunt), integris, supra ochraceo-viridibus parcius tomentosis glabratisve, subtus ex ochraceis subargenteis tomentello-lepidotis, nervis ca. 6-8-jugis pinnatim adscendentibus, glandulis subnullis, petiolo vix 0.5 - 0.8 mm. longo. Inflorescentiis spicatis. Floribus ♂: ignotis. Floribus ♀: perianthio ca. 3 - 3.5 mm. magno, valde reduplicativo, ochraceo-hispidulo; lobis late triangularibus 5, valide costulatis, ca. 2 mm. longis, petalis nullis, glandulis in discum tenuem margine integra connatis, vix e perianthio distinctis; ovario globuloso sublepidoto-tomentello ca. 2 mm. magno, stylis basi brevissime connatis quove ad tertium inferum in laciniis 4-7 involutis partito.

TYPUS: — Norte de Santander: — Cordillera Oriental, entre el Río Zulia y Cúcuta, alt. 450 m. *Cuatrecasas & García-Barriga 10164* (in Herb. Nac. Colomb.).

The affinities of this species are with *C. bixoides* Vahl from the West Indies and the ill defined entities on the Venezuelan northern coast associated with *C. choristolepis* Urb. (*Pittier 14021; Miller & Johnson 232)*. In Urban's species and its allies, however, the indumentum is strictly ledipote, the styles are cleft in a different manner and the glandular disc differs in shape.

Alchornea Swartz.

Sect. **Hermesia** (Humb. & Bonpl. ex Willd.) comb. nov.

Hermesia Humb. & Bonpl. ex Willd. Sp. Pl. 4 (2): 809. 1806, based upon *Alchornea castaneifolia* (Willd.) A. de Juss. has characters (smallness of the ♀ flower, penninerved venation, lack or near-lack of glands at the leaf-base, and habit) which suggest that it is not a synonym of *Alchornea* sect. *Eualchornea,* as decided by Mueller (in DC. Prodr. 15 |2|: 907. 1866) and Pax & Hoffmann (in Pflanzenr. iv. 147. vii: 221. 1914). I accept it as a distinct section to include *A. castaneifolia* and *A. cerifera.*

Alchornea cerifera sp. nov.

Arbuscula, innovationibus pilosulis glabratisve. Foliis rigidis, glabratis, venis penninervis ca. 7-9-jugis, manifestis, ellipticis vel obovatis, 3-7 cm. longis, 1.5-3 cm. latis, bene serratis, apice breviter acuminatis, basi plus minusve cuneatis vel rotundatis, glandulis nullis vel subnullis, petiolo quam 1 cm. breviore, stipulis subnullis. Inflorescentiis ♂ ignotis; ♀ rigidis, simplicibus ad 4-5 cm. longis. Floribus pro genere minimis, vix 2 mm. longis, stylis 2, vix 1 mm. quove longo; perianthio in axilla squamulae late triangularis ciliolatae ca. 1.5 mm. longae, lobis 4-5 squamiformibus, irregularibus, minimis; ovario indumento habitu fere tessellato crasso ceraceo toto induto ca. 1.5 mm. longo, 0.75 - 1 mm. lato.

TYPUS: — Comisaría del Putumayo: — Lado sur de la Laguna de la Cocha, Quebrada de Santa Lucía, alt. 2850 m. *Cuatrecasas 11824* (in U. S. Nat. Herb.).

A peculiar plant, easily characterized by the thick waxy cover of its ovary of which Dr. Cuatrecasas states: "Semilla negra provista de una grasa blanca, útil para hacer espermas".

Euphorbia Linnaeus (excl. *Chamaesyce)*.

Euphorbia Dugandiana sp. nov.

Cauliculis glabris ca. spithamaeis pluribus e rhizomate elongato hinc inde incrassato-noduloso. Foliis orbicularibus vel obcuneato-cordatis emarginatis vel late ellipticis utrinque fere aequo jure obtuse acuminatis, 0.75 - 2 cm. longis, 0.5 - 12 mm. latis, margine integra pilis sub lente acri pulchre rubro-zonatis vel purpureis ciliata, lamina caeterum subglabra, nervis adscendentibus gracilibus ca. 4-jugis, petiolo vix 2 mm. longo. Cyathio terminali singulo, purpureo-vinoso, pedicello gracili ad 1.5 - 2 cm. longo; involucro late cyathiformi ca. 4 mm. longo latoque, nectariis (glandulis) ca. 2.5 mm. magnis, quadrangulis, more proprio impresso-bilabiatis, labio antico (i. e.: ad cyathium) laminaeformi, postico in nectarii ipsius corpus abeunte nempe appendicem efformante; lobis ca. 1.5 - 2 mm. longis, flabellato-laceratis; gynophoro ca. 3 mm. longo per anthesim, ovario ovoideo glaberrimo ca. 2 mm. magno, stylis 3 ca. 1 mm. longis, bipartitis, calyculo subnullo vel nullo; floribus ♂ ("staminibus") pluribus.

TYPUS: — Cordillera Oriental, Páramo de Chocontá, alt. 2760-2830 m. *Cuatrecasas 9647* (in U. S. Nat. Herb.).

An alpine form of Sect. *Ipecacuanhae* Boiss. allied closely with no other known to me in Colombia or elsewhere. The much impressed 2-lipped nectaries (glands), the outer end of which simulates at first sight a petaloid appendage is very peculiar. I take special pleasure in dedicating this outstanding species to Dr. Armando Dugand, Director of the Institute of Natural Sciences of Bogotá.

Phyllanthus Linnaeus.

Phyllanthus acuminatus Vahl, Symb. Bot. 2: 95. 1791; Muell.-Arg. in DC. Prodr. 15 (2): 381. 1866, in Mart. Fl. Brasil. 11 (2): 42 pl. vii fig. 2. 1873.

Under this binomial I discuss here several entities which are at present little known botanically, but are found widespread throughout the whole of tropical and subtropical America. Most of them are used as fish-poison.

It proves impossible to treat these plants in a satisfactory manner with the material now available in herbarium. We know all too little of their ranges and habitats, and almost nothing of their variations. In addition, very few are the specimens with seeds which I have seen. My notes, consequently, have exploratory and provisional value.

Within the boundaries of tropical northern South America are found three related entities of which I have present knowledge,, as follows: **(a)** Foliage tending to become narrowly and abruptly acuminate, glabrous or scarcely puberulous as usually seen; ovary smooth glabrous, styles appressed short or rather short; disc under the ovary tending to be cupuliform and subentire; **(b)** Foliage ellipsoid not manifestly acuminate, prevailingly hairy; ovary papillose to armed with soft processes; styles effuse, long; disc under the ovary prevailingly of discrete glands; **(c)** Foliage as in **(b)**, ovary smooth glabrous as in **(a)**, but styles as in **(b)**.

Much could be written about the synonymy and nomenclature of this group, but this is not to be done here. I accept the three entities I have just characterized under the following binomials: **(a)** = *P. acuminatus* Vahl; *Loc. class.* "Cayenne"; **(b)** = *P. brasiliensis* (Aubl.) Muell.-Arg.; *Loc class.* "in hortis Caiennae & Guianae"; **(c)** = *P. Mexiae* Croiz.; *Loc. class.* "Ecuador, Canton Pajilli, near Santa Rosa". The first ranges very widely extending southward to Argentina; the second would seem to be more strictly localized in northern South America; the third is apparently restricted to western Ecuador and adjacent Peru and Colombia.

In the vicinity of these three species are several others, the types of *all* of which ought to be critically studied before a final disposition of the group is attempted. Omitting such binomials as Rusby's *P. ichthyometius* from Bolivia, and historic names of questionable status, I cite as members of this affinity: (1) *P. piscatorum* HBK.; *Loc. class.* "Atures, Amazonas in Venezuela"; (2) *P. graveolens* HBK.; *Loc. class.* "Rio Chamaya and near Jaen, Cajamarca in Peru"; (3) *P. pseudoconami* Muell.-Arg.; *Loc. class.* "Amazonas, Tropical America: Tarapoto, San Martín in Peru (var, *pubescens)";* "San Carlos, Amazonas, probably in Brazil (var. *glaber)";* (4) *P. Millei* Standl.; *Loc. class.* "Bahía in tropical Ecuador". All these species have *smooth ovaries,* to judge from description, although possible contradictions appear in certain accounts, witness Kunth describing the ovary of *P. piscatorum* as "subglobosum, glabrum" (Nov. Gen. & Sp. 2: 90 (113), 1817), while Mueller says (in DC. Prodr. 15 (2): 382. 1866) that it is "leviter papilloso". I believe that some of these binomials are not good species, either trinomials or flat synonyms, but I have no means of acting now on my suspicions. A dissection made of *Mille 1061,* holotype of *P. Millei* Standl., (in Field Mus. Publ. Bot. 22: 87 . 1940), revealed characters most closely agreeing with those of *P. pseudoconami* var. *pubescens* Muell.-Arg. *ex descr.* and of *P. graveolens* HBK.

Phyllanthus Mexiae Croiz., which is glabrous with a female disc of discrete glands and longer and more effuse styles than *P. Millei,* would seem to be a good species or, if not, a legitimate trinomial to be eventually placed under a binomial which remains to be ascertained. *Phyllanthus graveolens* var. *tenellus* Muell.-Arg. known from "Colombia", without closer indication of locality, originally published as *P. tenellus* Benth. non Roxb. (Bot. Voy. Sulphur 165. 1846), is described as glabrous, and since it was in all probability collected on the southwestern coast of Colombia, might be the same as *P. Mexiae*.

The following recent collections should be recorded from Colombia:

(1) *Duque sine num.*—Intendencia del Chocó, Bahía Solano, known as "Chirrinchao". The material I have at hand is imperfect, as only ripe dehisced capsules are available. These and foliage strongly suggest *P. Mexiae* Croiz. (in Jour. Washington Acad. Sc. 33: 14. 1943).

(2) *Cuatrecasas 11170.*—Comisaría del Putumayo, San Antonio del Guamués. This plant is evidently very common also in San Martín, Peru. Its ovary is finely papillose, beset here and there with coarser processes. Considering that the papillae are only to be seen under a good lens by a careful observer, this is probably the same plant described by Kunth as having a glabrous ovary, and a papillose one by Mueller, that is, *P. piscatorum* HBK. It also seems to be the plant illustrated by Aublet as *Conami brasiliensis* (Pl. Guian. 2: 927, pl. 354. 1775), which has a glabrous ovary in the figure, but effuse long styles. I accept, consequently, *Cuatrecasas 11170* as *P. brasiliensis* (Aubl.) Poir. (Encycl. Méth. 5: 296. 1804) Syn.: *P. Conami* Swartz 1788, Gmelin 1791, Richard 1792 et auct. mult.

Phyllanthus acuminatus is well represented in Santa Marta by *H. H. Smith 375* and in Boyacá by *Lawrance 189*. I have not seen it, however, in any of the recent collections so diligently promoted by the Herbario Nacional Colombiano (Instituto de Ciencias Naturales).

Sapium P. Browne.

Sapium putumayense sp. nov.

Arbor latificera, cujus specimen adest bene fructiferum sed ad autopsiam floralium vix idoneum. Foliis ellipticis 15-18 cm. longis, 8-9 cm. latis, sat tenuiter coriaceis, apice brevissime rotundato-acuminatis, haud glandulosis, basi truncato-rotundatis inciso-auriculatis, margine sat valide regulariterque serratis, serraturis ca. 5-7 per cm., apice mucronulo marcescente terminatis, nervis (majoribus) ca. 15-jugis patenti-adscendentibus, obscure anastomosatis; petiolo valido 3-4 cm. longo, glandulis patentibus transverse ellipticis, stipulis griseis coriaceis auriculatis. Infrutescentia compacta racemosa pervalida ad 30 cm. longa, capsulis submaturis drupaceis, (videtur) depresso-globulosis ca. 2.5 - 3 cm. longis latisque, apice basi styli in epicarpium nigrescens late confluente coronatis, base styli ipsa vix 1 - 1.5 cm. longa.

TYPUS: — Comisaría del Putumayo; alta cuenca del Río Putumayo, Valle de Sibundoy junto a San Francisco, 2200 m. alt. *Cuatrecasas 11583* (in U. S. Nat. Herb.).

Although the auriculation at the base of the leaf is not large, it is quite marked and readly noticeable. *Sapium stylare* Muell.-Arg. which is the other species of *Sapium* with auriculate leaves, is a very different plant - as shown by *Fendler 1231* - with a slender growth and a basically different shape of the foliage.

Sapium utile Preuss, Exped. Centr. Südamer. 386, pl. 11 fig. 1. 1901.

Pax & Hoffmann's monograph of *Sapium* (in Engl. Pflanzenr. iv. 147. v: 199-258. 1912) does not furnish a reliable base for the elaboration of the genus; it lacks an appreciation of the ranges and is tainted by nomenclatural errors. The two authors *(op. cit.* 204) put *S. utile* Preuss, 1901, in the synonymy of *S. Pavonianum* (Muell.-Arg.) Huber, 1906; this is a violation of the principle, now well established in the Rules of Nomenclature, that the first name validly published in a certain rank is not to be overthrown by a combination made around a name published - be this at an earlier date - in a different rank (see Art. 58, Rules of Amsterdam 1935; examples of *Magnolia grandiflora* and *M. foetida)*. *Sapium utile,* consequently, stands as a valid name.

It is not yet proved, in my opinion, that *S. Pavonianum* and *S. utile* are the same species. The former was published by Huber (in Bull. Herb. Boiss. 2 sér., 6: 355 fig. 14, 356. 1906) on a specimen of Peruvian origin; the figure by Huber distinctly shows a leaf with smooth entire margins. The latter has constantly been illustrated and described as having serrulate leaf-margins, although the serration may be obscure (see Preuss, *op. cit.* pl. 11 fig. 1, pl. 12 (as *S. decipiens);* Huber, *op. cit.* 356, fig. 15; Hemsley in Hook. Ic. 29; pl. 2896. 1909).

It is altogether probable that *S. utile* and *S. decipiens,* both contemporaneously published by Preuss, are conspecific, the use of the former by Huber in 1906 legitimizing *S. utile* as against *S. decipiens* (Rules of Amsterdam, Art. 56).

Sapium utile was originally collected near sea-level in Ecuador, at Juan de Oro. The Colombian material which is now accepted under *S. utile* consists of sterile specimens collected by *Lehmann* along the sea-coast of the Departamento del Cauca (Micay, Timbiquí, etc.). These collections have manifestly serrulate leaves, such as are illustrated by Huber, Hemsley and Preuss. Neither fruiting nor flowering material has yet been collected to my notice in Colombia.

Sapium verum Hemsl. in Hook. Ic. 27: pl. 2647. 1900 p. p. typ.; Preuss Exped. Centr. Südamer. 384-390, pl. 11 fig. 2-3. 1901; Pax & Hoffm. in Engl. Pflanzenr. iv 147. v: 211. 1912; Pittier in Contr. U. S. Nat. Herb. 18 (2): 70 pl. 42-43. 1914.

The known range of this species has so far been Ecuador, and the departments of Tolima and El Valle in Colombia. *Pérez-Arbeláez & Cuatrecasas 5255:* Dintel (Facatativá-La Vega), from the department of Cundinamarca, fully agrees with Hemsley's illustration and description. The style fuses with the fleshy epicarp, and the stigmas are deciduous at maturity, leaving behind a peculiarly beaked fruit; this fruit is much in evidence on the material cited. As noticed by Pittier, *S. verum* is a tree of the upper *tierra templada* and lower *tierra fría,* evidently ranging to 2700 m. in Cundinamarca. *Saplum tolimense* Jumelle, which Pax & Hoffmann and other authors treat as a synonym of *S. verum* is stated, by Pittier (in *op. cit.* 72, pl. 44 C, fig. 77-78) to be a distinct species, ranging in Tolima, but restricted to the upper *tierra caliente* and lower *tierra templada.* The material I have so far seen is inadequate to discuss the classification of these species here, but Pittier's evidence is ably mustered. *Sapium verum* according to him has a seed "lenticular, 7 to 8 mm. long, 5 mm. thick, apiculate, verruculose, sinuate-cristate on the margin", while *S. tolimense* has a seed "lenticular, more or less orbiculate, about 10 mm. long and wide, obtusely cristate on the edge and rarely apiculate". These differences are illustrated by Pittier (*op, cit.,* pl. 44 B and C) and also appear, in the original plate of *S. verum,* the seed of fig, 2 and 3 of this plate being unlike those of fig. 5 and 6; the former ought to belong to *S. verum,* the latter to *S. tolimense*.

Sapium bogotense Huber in Bull. Herb. Boiss., 2 sér., 6: 355, fig. 13. 1906; Hemsley in Hook. Ic. 20: pl. 2891. 1909; Pax & Hoffm. in Engl. Pflanzenr. iv. 147. v: 233. 1912.

Sapium biglandulosum (Aubl.) Muell..-Arg. var. *bogotense* (Hub.) Monach. in Bull. Torrey Cl. 67: 772 in text. 1940.

Triana 5780-2 in the Herbario Nacional Colombiano is apparently the same as *Triana 3567,* Bogotá, Ubalá, type-collection of *S. bogotense. Cuatrecasas 9709* (locality unspecified on sheet in the herbarium of the Arnold Arboretum of Harvard University) (*) is an excellent match of the cited number of Triana and of the plate of Hemsley. *Sapium biglandulosum,* the proper use which I have recently discussed (in Journ. Arnold Arbor. 24: 175. 1943), has nothing in common with *S. bogotense.*

Pedilanthus Necker

(nom. gen. conserv. propositum, Wheeler 1939).

Pedilanthus tithymaloides (L.) Poit. in Ann. Mus. Paris 19: 390-395, pl. 19, fig. a, b, c, 1812; Boiss. in DC. 15 (2): 5. 1862; Millsp. in Field Mus. Bot. 2: 355. 1913; Wheeler in Contr. Gray Herb. 124: 49. 1939.

The basinym of *P. tithymaloides* is *Euphorbia tithymaloides* L. (Sp. Pl. I: 453. 1753), a mixture of all the species in this group known to Linnaeus and his predecessors. Poiteau's species is the type of the genus by Millspaugh's designation, but no author, not even Wheeler (in *op. cit.* 43-51), has designated the specimen or figure which is to typify the species. Since no specimen is extant in the Linnean herbarium (see B. D. Jackson, Index Linn. Herb. 75. 1912), I designate here as typic Pl. 19 fig. a, b, c, of Poiteau's original publication. This iconography is crude, but the disposition of the glands within the cyathium is revealing; in this genus the cyathium-structure usually has definite specific significance.

(*)—The locality indicated on the label of *Cuatrecasas 9709* in the Herbario Nacional Colombiano is the following: "Departamento de Boyacá; Cordillera Oriental, vertiente oriental, entre Guateque y Guayatá, márgenes del río Súnuba, 1500 m. alt., junio 30, 1940".

The name Guateque is mispelled "Gueteque" on the labels of this series. EDITOR.

Dugand & Jaramillo 2752 Depto. del Atlántico, cerca de Ponedera, has floral structures compatible with those shown by Poiteau. I accept it as ***P. tithymaloides***. It seems sure that this plant, known from the shores of the Caribbean throughout and widely cultivated, is endemic in northern Colombia as an element of the subxerophytic type of forest (cf. Dugand in Rev. Acad. Colomb. Cienc. 4, 14: 139 et 140. 1941). The local Colombian name "Pítamo real" is apparently a corrupt rendering of the vernacular "Dítamo real" which is reported from Honduras (cf. *P. personatus* Croiz.; notes on *Edwards 581,* Comayagua). This name was originally derived - to all appearances - from a fancied resemblance of the cyathium of *Pedilanthus* to a flower of *Dictamnus,* a rutaceous perennial of the Old World.

CACTACEAE

Opuntia Miller

Opuntia Schumannii Weber ex Berger in Gard. Chron., Ser 3, 35: 34, fig. 16. 1904; Britton & Rose, Cact. 1: 155, pl. 27, fig. 1-2. 1919.

Dugand 3124, Cundinamarca: región árida entre Girardot y Tocaima, alt. 350-400 m. "ramificada, 1-3 m. alt." (in herb. Arnold Arbor.), belongs to this species as defined and certified by Britton and Rose on the strength of a plant collected by Sinclair at "Santa Clara", Colombia, from which the illustrations in the cited "Cactaceae" were seemingly derived. The original description was made on a plant of unknown origin, growing at Bordighera, near Genoa, Italy, and is accompanied by the sketch of a longitudinally open flower, showing the peculiar erect lobes of the hypanthium. The material of *Dugand 3124* is excellent, and quite agrees with the figures of Britton and Rose. This I believe to be the first properly dried and recorded collection of this species deposited in a known herbarium. It is hoped that it will be possible to preserve similar material for all other Cactaceae of Colombia. Fortunately, this Republic has been so far comparatively little touched by commercial collectors of Cacti and amateur-botanists working with them.

Acanthocereus (Engelm.) Britton & Rose

Acanthocereus Pitajaya (Jacq.) Dugand mss. comb. nov.

Cactus Pitajaya Jacq. Enum. Pl. Carib. 23. 1760; Select. Stirp. Amer. Hist. 151. 1763.

Cereus Pitajaya DC. Prodr. 3: 466. 1828.

Acanthocereus pentagonus (L.) Britt. & Rose in Contr. U. S. Nat. Herb. 12: 432. 1909; Cact. 2: 123. 1920 *saltem quoad plant. Colomb. p. p.*

Acanthocereus colombianus Britt & Rose Cact. 2: 122. 1920; Backb. & Knuth Kakt.-ABC 302. 1935.

The publication of *A. pentagonus* (L.) Britt. & Rose specifies (*op. cit.* 433) the following distribution: "Southern Texas, south along the coast of Mexico to Costa Rica, Central America; Florida Keys; Cuba; Guadeloupe", and gives "America" as the type-locality. Later (Cact. 2: 123. 1920) the range was increased to include "Keys of Southern Florida; coast of Texas, south along the eastern coast of Mexico to Guatemala and Panama; the coasts of Colombia and Venezuela and Guadeloupe. Introduced on St. Thomas and St. Croix. Recorded from Cuba", with this qualification *(op. cit.* 124) : "As understood by us (Britton and Rose) this species varies greatly in the relative thickness of its branches, in armament, and in the size of its flowers. Its geographical range is, in our conception, greater than that of most cacti". Three years later Britton and Rose (Cact. 4: 276. 1923) came to the conclusion that the plant of the keys of Florida is a distinct species, *A. floridanus* Small ex Britt. & Rose, originally confused by them with similar cacti in Texas and elsewhere.

The range outlined by Britton and Rose, with or without Florida, is not repugnant to the distribution of many plants of the Caribbean domain, but the variability of the characters they comment upon suggests a mixture of different entities. *Cereus undulosus* DC. (a plant originally recorded from the vicinity of Port-au-Prince, Haiti) which they place, if with doubt, in the synonymy of *Acanthocereus pentagonus* has "Truncus erectus crassitie fere corporis humano, 2 m. v. ultra altus... ovarium squamas nonnullas gerens. Fructus forma et magnitudine mali crassi..." (see Weingart in Urban, Symb. Antill. 8: 463. 1920), and badly, if indeed at all, agrees with the plant of the mouth of the Rio Grande, in Texas and Tamaulipas (see Schulz & Runyon, "Texas Cacti", Texas Acad. Sc. Proceed. 14. 1930, 71-72 fig. frontispice). Werdermann, too, considers the arborescent form of Haiti to be synonymous with that of Texas (in Fedde Repert. 29: 236. 1931), but the "Big tree-cactus" 5 to 6 meters tall spoken off by Ekmann *(Ekman 4026,* as cited by Werdermann) much sooner agrees with the entity described by Weingart than with the less robust plant of Schulz & Runyon from Texas.

The fruiting material illustrated by Britton and Rose under *A. pentagonus* (Cact. 2: 123, fig. 183. 1920) is from Laredo, Texas; other illustrations (*op. cit.*, fig. 182, 184, pl. xvi. fig. 1) belong to *A. floridanus* or to a plant of unknown origin from Berlin, Germany. Laredo, strictly speaking, is not within the actual range of *A. pentagonus* in Texas, for this Cactus is strictly limited to few counties immediately adjacent to the mouth of the Rio Grande (according to Schulz & Runyon: Cameron Co., Willacy Co., probably Kenedy Co. and "a few scattered patches along the Gulf Coast (of Texas)", but it is likely that the Laredo plant is the same as that of the lower Rio Grande. I accept, consequently, this plant - and no other - as typic of the concept of *A. pentagonus* (L.) Britt. & Rose. This plant should have been placed under *Acanthocereus* with reference to *C. princeps* or *C. baxaniensis,* not named in a combination involving the meaningless *Cactus pentagonus* of Linnaeus, which is anything but the Texan plant. However, taxonomic names are not meant to tell the history of a plant, but merely to supply a means of referring to it (see Art. 15 of the current Rules), and no justification now exists to alter the name given to this entity by Britton and Rose 1909. To clarify the range further, and assuming that Britton and Rose, and Werdermann in particular, are right in identifying *C. undulosus* DC, as a species of *Acanthocereus,* I propose for this plant the new combination **Acanthocereus undulosus (DC.) Croiz.** (*Cereus undulosus* DC. sensu Werdermann in Fedde Repert. 29: 236. 1931) with special reference to *Ekman 4026.* The material from Colombia which Britton and Rose determine as *A. pentagonus* may or may not be conspecific with the plant from Lower Texas, a point which remains to be carefully studied. The majority of the forms in this vicinity are widespread in cultivation, which will not lighten the burden of coming investigation.

The decision by Britton and Rose to treat *Cactus Pitajaya* Jacq. as a synonym of their inflated *A. pentagonus,* while publishing a new species *A. colombianus,* is characteristic of the oracular brand of taxonomy often practiced by these authors. As a justification of their doings, they merely state the following (Cact. 2: 122. 1920): "According to Mr. Smith this species (*A. colombianus*) grows in dry forests and thickets at low altitudes; here it is known as pitahaya. His plant (*H. H. Smith 2423,* cotype of *A. colombianus*) comes from near the type locality of *Cactus pitajaya* Jacquin, but we refer that species to *A. pentagonus,* also found in northern Colombia". Why they effect this reduction Britton and Rose do not believe necessary to state. The fact is that Jacquin definitely describes a 3-winged cactus, of which he carefully indicates the type-locality ("Habitat Carthagenae in fruticetis maritimis; copiose in insula Mango". (*) Select. Stirp. Amer. Hist. 152. 1763), giving every detail necessary to a full identification. This cactus still grows very near the type-locality, around Cartagena, is readily recognizable by Jacquin's charaterization and - unlike *A. pentagonus* - is basically 3- not 3-5-winged; it agrees in addition with the description of *A. colombianus* by Britton and Rose. The right of an author to certify and old and doubtful name for what is practically a new entity is not to be challenged, and a just concern for existing nomenclature forbids to propose for *A. pentagonus* Britt. & Rose a new binomial, notwithstanding the fact that the epithet *pentagonus* is ill chosen and historically incorrect. It will readily be seen, on the other hand, that rejecting Jacquin's excellent species against all rules of evidence and correct procedure is a deed that cannot go unchallenged.

The range and distribution of the species in this group are consequently outlined as follows:

Acanthocereus pentagonus (L.) Britton & Rose.
Texas at the mouth of the Rio Grande, southward at least as far as Tampico, Mexico.
Acanthocereus floridanus Small ex Britton & Rose.
Southern Florida.
Acanthocereus undulosus (DC.) Croizat.
Vicinity of Port-au-Prince, Haiti.
Acanthocereus Pitajaya (Jacq.) Dugand.
Northern Colombia.

These ranges are but the frame work upon which a further study of this group may be made.

Specimens of *A. Pitajaya* to exemplify the new combination are preserved in the Herbario Nacional Colombiano (Instituto de Ciencias Naturales, Bogotá, Colombia), and will be deposited as soon as practicable in the herbarium of the Arnold Arboretum of Harvard University.

Frailea Britton & Rose.

Frailea colombiana (Werderm.) Backeb. & Knuth Kakt.-ABC 248. 1935.
Echinocactus colombianus Werderm. in Notizbl. Bot. Gart. Berlin

---

(*)—The name of the locality is properly spelled Manga (Barrio de Manga) now a suburban part of the city of Cartagena.—EDITOR.

11: 271. 1931; in Monatsschr. Deutsch. Kakt.-Gesell. 4: 2, 3 fig. 1932.

Werdermann accepts this cactus as one of the *Frailea* affinity, a disposition which I have no reason at present to question, although Backeberg remarks that this plant is quite unlike the species commonly treated as *Frailea*. I believe that, as such, *Frailea* is o good genus, which it proves impossible to subordinate to *Echinocactus*. I have not seen authentic material. The type was a live plant collected at 1500-1800 m. above sea-level at Dagua on the railroad from the Buenaventura to Cali, Depto. El Valle. It might still be preserved in the Berlin herbarium.

Frailea is essentially restricted to Argentina, Uruguay and Paraguay, and its presence in Colombia is anomalous in the light of our present knowledge of the distribution of the Cactaceae. *Malacocarpus*, too, should not be endemic in Colombia, as I have noticed elsewhere. The presence of these two genera so far away from their original centers of distribution gives Colombia a position of prominence in respect to the Cactaceae, for nowhere else is found so peculiar a grouping of genera as in this Republic. A diligent study of this family within the Colombian boundaries is likely to yield exceedingly valuable material.